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### Title

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### Abstract

An integrated circuit which supports the token bus access method and physical layer specification' IEEE-802.4 communication protocol, constitutes the specification of the physical and link layers of MAP manufacturing automation protocol. The authors focus on the functional aspects of the circuit, showing its interfacing methods and the protocol implementation in a communication subsystem. The integrated circuit was designed according to a full custom design methodology. The final project was carried out by the first 'Multiproject Chip' sponsored by the Brazilian government. Some goals of the project were: 3um CMOS technology, operation up to 10 Mbit/s, microprocessor interfacing by external FIFOs, 16 bits address recognition, broadcasting messages, frame assembling/disassembling (including insertion and verification of CRC and synchronism).

### Descriptors

CMOS-INTegrated-CIRCUITS; COMPUTER-NETWORKS; MICROPROCESSOR-CHIPS; PROTOCOLS.

### Classification codes

B1265F Microprocessors-and-microcomputers\* ;  
B2570D CMOS-integrated-circuits;  
C5130 Microprocessor-chips\* ;  
C5620 Computer-networks-and-techniques;